

CLAIMS:

1. An inertia switch, comprising:
  - a first conductive spring and a second, smaller conductive spring held within the first spring;
  - 5 a first contact connected to the first spring and a second contact connected to the second spring; and
  - an insulating directional regulator having an axial extension for only a portion of its circumference, the insulating directional regulator held between the first and second springs.
- 10 2. The inertia switch of Claim 1, further comprising a housing and a housing closure, the housing comprising a ledge for mounting one of said springs and the regulator, wherein the contacts protrude through openings in one of the housing and the housing closure.
- 15 3. The inertia switch of Claim 1, wherein the regulator has at least two different thicknesses in different portions of the regulator.
4. The inertia switch of Claim 1, wherein a portion of the axial extension has a thickness different from a remainder of the directional sensing regulator.
5. The inertia switch of Claim 1, further comprising a flashing light system.
- 20 6. The inertia switch of Claim 1, further comprising a flashing light system connected to the contacts and an item selected from the group consisting of footwear, an article of clothing, and a personal accessory.
7. The inertia switch of Claim 6, wherein the flashing light system further comprises a plurality of LEDs, a controller, and a power source.
- 25 8. The inertia switch of Claim 6, wherein the flashing light system further comprises at least two voltage sources and at least one LED connected to the at

least two voltage sources, wherein the flashing light system applies at least two voltages sequentially to the at least one LED.

9. A method of controlling a flashing light system, the method comprising:

      forming a flashing light system comprising an inertia switch

5       according to Claim 1, the flashing light system connected to the contacts; and

      mounting the flashing light system in an item selected from the group consisting of footwear, an article of clothing, and a personal accessory, wherein the flashing light system may be activated by causing motion of at least one spring in the inertia switch.

10      10. A method of making a flashing light system, the method comprising:

      making an inertia switch according to Claim 1;

      assembling the inertia switch into a flashing light system; and

      installing the flashing light system into an item selected from the group consisting of footwear, an article of clothing, and a personal accessory.

15      11. A method of controlling a flashing light system, the method comprising:

      mounting a first conductive spring inside a second conductive spring; and

20      placing an insulating directional regulator having an axial extension for only a portion of its circumference between the conductive springs to form an inertia switch for a flashing light system, wherein the flashing light system may be activated by causing motion of at least one spring in the inertia switch.

12. An inertia switch, comprising:

25      a first coil spring having a first diameter and mounted on a first contact and a second coil spring having a second diameter mounted on a second contact, the coil springs each being electrically conductive; and

      an insulating housing mounting the first and second contacts and separating the first contact and the second contact by a fixed distance, wherein the

distance is between one-half a sum of the first and second diameters and the sum of the first and second diameters.

13. The inertia switch of Claim 12, wherein the first diameter and the second diameter are equal to each other, and the fixed distance is between one diameter and two diameters long.

5           14. The inertia switch of Claim 12, wherein the contacts are mounted in the housing by features formed in the housing by molding or machining.

10          15. The inertia switch of Claim 12 and a flashing light system connected to the first and second contacts.

16. The inertia switch of Claim 12, further comprising a flashing light system connected to the first and second contacts, and an item selected from the group consisting of footwear, an article of clothing, and a personal accessory.

17. The inertia switch of Claim 16, wherein the flashing light system further comprises a plurality of LEDs, a controller, and a voltage source.

15          18. The inertia switch of Claim 16, wherein the flashing light system further comprises at least two voltage sources and at least one LED connected to the at least two voltage sources, wherein the flashing light system applies at least two voltages sequentially to the at least one LED.

20          19. A method of controlling a flashing light system, the method comprising:

assembling a flashing light system comprising an inertia switch according to Claim 12; and

25          mounting the flashing light system in an item selected from the group consisting of footwear, an article of clothing, and a personal accessory, wherein the flashing light system may be activated by causing motion of the inertia switch.

20. A method of making a flashing light system, the method comprising:

making an inertia switch according to Claim 12;

connecting the inertia switch into a flashing light system; and

installing the flashing light system into an item selected from the

5 group consisting of footwear, an article of clothing, and a personal accessory.

21. A method of controlling a flashing light system, the method comprising:

10 placing a first contact inside a first electrically conductive coil spring, and placing a second contact inside a second electrically conductive coil spring; and

15 mounting the first contact and first spring and the second contact and second spring inside an electrically insulating housing, wherein the first contact and second contact are separated by a fixed distance between one half of a sum of the first and second diameters and the sum of the first and second diameters, to form an inertia switch for a flashing light system, wherein the flashing light may be activated by causing motion of at least one spring in the inertia switch.

22. An inertia switch, comprising:

an insulating housing;

20 a first contact maintained at a fixed position at a proximal end of the housing;

a conductive leaf spring and a second contact, the second contact maintained at a fixed position at a distal end of the spring within the housing; and

25 a conductive mass mounted on the spring near the first contact,

wherein the switch is normally open and is closed by motion of a user flexing the leaf spring, causing the mass to contact the first contact.

23. The inertia switch of Claim 22, further comprising a housing top, wherein the contacts protrude through one of the housing and the housing top.

24. The inertia switch of Claim 22 and a flashing light system connected to the contacts.
25. The inertia switch of Claim 22, further comprising a flashing light system connected to the contacts and an item selected from the group consisting of 5 footwear, an article of clothing, and a personal accessory.
26. The inertia switch of Claim 25, wherein the flashing light system further comprises at least two voltage sources and at least one LED connected to the at least two voltage sources, wherein the flashing light system applies at least two voltages sequentially to the at least one LED.
- 10 27. A method of controlling a flashing light system, the method comprising:
- assembling a flashing light system comprising an inertia switch according to Claim 22; and
- mounting the flashing light system in an item selected from the 15 group consisting of footwear, an article of clothing, and a personal accessory, wherein the flashing light system may be activated by causing motion of the inertia switch.
28. An inertia switch, comprising:
- an insulating housing;
- a first and a second contact mounted side by side in the housing; and
- a first magnet mounted to the housing and a second magnet 20 disposed within the housing, the first magnet and the second magnet opposed by a repulsive force between the magnets, wherein the switch is normally open and motion of the user causes the second magnet to move, contacting both contacts and closing the switch.
- 25 29. The inertia switch of Claim 28, further comprising a mass connected to the second magnet.

30. The inertia switch of Claim 28 and a flashing light system connected to the contacts.

5           31. The inertia switch of Claim 28, further comprising a flashing light system and an item selected from the group consisting of footwear, an article of clothing, and a personal accessory.

32. The inertia switch of Claim 31, wherein the flashing light system further comprises a plurality of LEDs, a controller, and a power source.

10          33. The inertia switch of Claim 31, wherein the flashing light system further comprises at least two voltage sources and at least one LED connected to the at least two voltage sources, wherein the flashing light system applies at least

two voltages sequentially to the at least one LED.

34. A method of controlling a flashing light system, the method comprising:

15          assembling a flashing light system comprising an inertia switch according to Claim 28; and

mounting the flashing light system in an item selected from the group consisting of footwear, an article of clothing, and a personal accessory, wherein the flashing light system may be activated by causing motion of the inertia switch.

20          35. A method of making a flashing light system, the method comprising:

making an inertia switch according to Claim 28;

assembling the inertia switch into a flashing light system; and

installing the flashing light system into an item selected from the group consisting of footwear, an article of clothing, and a personal accessory.

25          36. The method of Claim 35, further comprising connecting a mass to the first magnet.

37. A method of controlling a flashing light system, the method comprising:

mounting two conductors side by side in an insulating housing;

5 placing a first magnet and a second magnet in the housing, the first magnet and the second magnet opposed by a repulsive force between the magnets to form an inertia switch for a flashing light system; and

closing the inertia switch through motion of the switch, causing the first magnet to contact both contacts simultaneously and activate the flashing light system.